

STUDIES IN THE HELIANTHEAE (ASTERACEAE). XXXXII.  
NEW SPECIES OF CLIBADIUM, MONACTIS AND VERBESINA FROM  
THE NORTHERN ANDES.

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The following two new species of Clibadium, one new species of Monactis, and two new species of Verbesina all described from Colombia, Ecuador and Peru. The two species of Clibadium are of particular interest.

**Clibadium rimachii** H. Robinson, sp. nov.

Plantae fruticosae ad 1 m altae mediocriter ramosae. Caules fulvi teretes striati minute appresse strigulosi, internodis 3-6 cm longis. Folia opposita, petiolis 1-2 cm longis angustatis; laminae ovatae 7-11 cm longae et 1.8-3.5 cm latae base acutae et sensim acuminatae margine inferne integrae ad medio et superne remote serrulatae vel mucrono-serrulatae apice anguste acuminatae breviter caudatae supra et subtus antrorse appresse strigulosae subtus pallidiores supra basem ascendenter trinervatae. Inflorescentiae in ramis primariis terminales in visis primis in axillis dichotomis positae, ramis lateralibus innovationibus elongatis, paniculis corymbosis in ramulis late divaricatis cymosis, paniculis base opposito-ramosis distaliter alterno-ramosis. Capitula sessilia vel in ramulis ultimis pedunculata hemisphaerica ca. 5 mm lata; bracteeae involucri maturitatae in planis disciformis dispositae, bracteeae steriles ca. 5 et bracteeae femineae ca. 30 ca. 4-seriatae herbaceae virides perlate ovatae 2-3 mm latae et 1.5-2.0 mm longae base late rotundatae vel subtruncatae apice breviter apiculatae margine minute dense hispidule fimbriatae extus parse appresse pilosulae, bracteeae masculinae 6-8 scariosae tenues anguste oblongae vel oblanceolatae subconduplicatae ca. 2 mm longae apice obtusae interdum leniter cucullatae margine superne erosae dense pilosulo-fimbriatae, ductis resiniferis longitudinalibus ad medio attingentibus. Corollae femineae anguste infundibulares ca. 1.2 mm longae glabrae apice inaequaliter 3-4-lobatae, ductis resiniferis valdis sub lobas majoras ad medio attingentibus; corollae masculinae infundibulares ca. 1.8 mm longae apice 4-5-lobatae, lobis triangularibus ca. 0.5 mm longis et base 0.3 mm latis extus minute puberulis et raro rigide pilosulis, ductis resiniferis plerumque sub sinus binis et in lobis extendentibus, ductis additionalibus raro sub apicos loborum ad medio breviter praesentibus; filamenta in parte superiore ca. 0.2 mm longa et base 0.09 mm lata; thecae ca. 0.9 mm longae nigrae; appendices antherarum ovatae ca. 1.2 mm longae

et latae nigrae; styli non ramosae. Grana pollinis in diametro ca. 25  $\mu$ m. Achaenia feminea late lentiformia ca. 1.5 mm longa et ca. 1 mm lata glabra apice breviter appendiculata producta, appendicibus ca. 0.3 mm longis erectis; achaenia masculina anguste cylindrica apice late annulata laterale puberula superne dense rigide pilosulae, pilis uniseriatis apice argute apiculatis.

TYPE: PERU: San Martin: San Martin, Dept. Tarapoto. Carretera de Tarapoto-Yurimaguas, km 12 to 16, elev. ca. 2250 ft., wet montane forest, sandy rocky soli, 1 m, corolla white, fr. green. Aug. 23, 1978. Manuel Rimachi Y. 3877 (Holotype US).

The general aspect of the new species, the pilosulous achenes of the male flowers, and the 4 ranks of female flowers in the heads led to the initial identification as Clibadium eggersii Hieron. which ranges from Costa Rica to Ecuador. The Peruvian specimen, however, proves thoroughly distinct in the apical appendage of the female achene that forms a pedicel under the flower. Such structures are found in various members of the genus such as C. pediculatum Aristeg., and in the related genus Lantanopsis, but the species having the pedicel are not necessarily closely related to each other. The heads are also distinctive in the very broad involucrel bracts that spread in a flat plane when mature. The resin ducts of the male corollas tend to be single along the veins of the throat, but the ducts usually become paired in the area below the sinus. One of each pair of ducts extends upward into the corolla lobe. A short duct is sometimes also present in the middle of the lobe.

***Clibadium zarucchii* H. Robinson, sp. nov.**

Plantae fruticosae ad 3 m altae mediocriter ramosae. Caules fulvi tereti parse appresse strigulosi, internodis 6-9 cm longis. Folia opposita, petiolis 1.5-4.0 cm longis anguste alatis; laminae ovatae 7-20 cm longae et 4-11 cm latae base sensim anguste acuminatae margine superne sensim serrulatae apice breviter acuminatae apiculatae supra parse breviter appresse strigulosae subtus densius et longius appresse strigulosae, nervis secundariis ascendentiter pinnatis supra basem in binis 2-3 superne remotioribus. Inflorescentiae in ramis terminales ca. 5-ramosae, ramis oppositis erecto-patentibus robustis appresse strigulosis; capitula ca. 100 in glomerulis sphaericis dense aggregata, glomerulis in diametro 2-4 cm, pedunculis ultimis perbrevis dense hispidulis. Capitula individua ad 9 mm alta et 2-3 mm lata; bractee involucri steriles 4 et bractee femineae 4-6 ovatae et longe acuminatae 5-6 mm longae et 2.5 mm latae induratae fulvae superne viridiores exteriores extus sparse scabridulae in subulis margine dense breviter hispidulae; paleae interiores masculinae scariosae tenuiores 2-3 mm longae superne subacutae erosae margine dense hispidulo-fimbriatae. Flores femineae/masculinae plerumque 4/4 interdum 6/2 in binis decussatae; corollae femineae anguste tubulares 4.0-4.5 mm longae apice breviter inaequaliter

4-lobatae vel raro 3-lobatae extus glabrae, ductis resiniferis longitudinalibus ca. 5 variabiliter subapicem loborum majorum vel inter lobulis minoribus terminatis; rami stylorum late longe recurvati; corollae masculinae ca. 5 mm longae base anguste infundibulares sensim tubulares apice 5-lobatae extus glabrae, lobis triangularibus ca. 0.8 mm longis et base 0.7 mm latis, ductis resiniferis ca. 10 longitudinalibus in et inter lobos non conniventibus sub apicem loborum et sub sinus terminatis; filamenta in parte superiore ca. 0.2 mm longa et 0.18 mm lata; thecae ca. 2 mm longae nigrae; appendices antherarum ovatae ca. 0.3 mm longae et latae nigrae; styli non ramosi. Grana pollinis in diametro ca. 27  $\mu$ m. Achaenia feminea late lenticularia orbiculata ca. 2 mm longa et lata glabra vel subglabra in apicem breviter appendiculate producta, appendicibus ca. 0.3 mm longis erectis; achaenia masculina anguste cylindrica apice late annulata plerumque laterale glabra superne 1-3-pilifera.

TYPE: COLOMBIA: Antioquia: Mpio. de Frontino; km 14 of road Nutibara-Murri. Disturbed wet/very wet montane vegetation; roadside. 06° 45'N, 76° 23'W, elev. 1870 m. Shrub 3 m tall; inflorescences bright green. 23 Sept. 1987. James L. Zarucchi, Alan E. Brant, Carlos Julio Castaño 5674 (Holotype US, isotype MO).

The inflorescence of the new species has the most massive congestion of heads of any member of the genus. The glomeruli are much larger than those in such species as Clibadium trianae (Hieron.) Blake, C. subsessilifolium Hieron., C. sprucei Blake, and C. harlingii H. Robins. (Robinson 1979). Their larger size is correlated with a reduction in number of glomeruli and a thickening of the subtending branches. The involucre bracts and paleae are elongate with subulate tips. The male and female corollas are also longer and narrower than in any other species seen. The resin ducts of the male corollas are along both the veins and along the midlines of the lobes. The ducts along the veins are single and stop at the sinuses without extending into the lobes. The median lobe ducts extend upward to near the tips of the lobes. The male achenes are unlike many members of the genus by being nearly glabrous. The heads are highly structured in alternating pairs of bracts and flowers. There are two basal pairs of sterile bracts followed by two pairs of bracts with female florets and two pairs bracts with male florets. Sometimes the ratio of florets is six female to two male.

***Monactis anderssonii*** H. Robinson, sp. nov.

Plantae frutescentes ad 1-3 m altae mediocriter ramosae. Caules fulvi striati et dense puberuli in nodis subtiliter deflecti. Folia alterna, petiolis 5-13 mm longis; laminae ovato-subrhomboideae 4-6 cm longae et 1.5-3.0 cm latae base cuneatae et leniter acuminatae supra basem trinervatae margine leniter serrulatae apice breviter acuminatae supra scabridulae et in nervis hispidulae subtus plerumque in nervis et nervulis scabridulae

utrinque glandulo-punctatae subtus densius glanduliferae. Inflorescentiae in ramis terminales corymboso-paniculatae ca. 2.0-2.5 cm altae et ca. 4 cm latae alterne ramosae, ramis dense puberulis. Capitula 1-5 in ramis ultimis aggregata unumquidque cylindrica; involucri ca. 5 mm alta et 2 mm lata; bracteae involucri ca. 15 virides oblongae graduatae 2-4 mm longae et ca. 1 mm latae apice breviter obtusae vel rotundatae margine minute ciliatae extus laeves plerumque glabrae; paleae bracteiformes subtubulares ca. 4 mm longae apice breviter obtusae extus pauce puberulae. Flores ca. 6 in capitulo; corollae flavae ca. 3.8 mm longae, tubis ca. 1.8 mm longis extus glandulo-punctatis parce puberulis, faucibus late campanulatis ca. 1.2 mm longis et 1.2 mm latis, lobis ca. 0.8 mm longis et base 0.6 mm latis; filamenta in parte superiore ca. 0.25 mm longa; thecae ca. 1.4 mm longae; appendices antherarum nigrae triangulares ca. 0.3 mm longae et base 0.25 mm lata. Achaenia anguste fusiformia arcuata ca. 4.5 mm longa glabra; pappus nullus. Grana pollinis in diametro ca. 35  $\mu$ m.

TYPE: ECUADOR: Loja: Cerro Villonaco, W slope, 2800 m, moist scrub. Shrub, c. 1 m tall. Flowers yellow. 10 Feb. 1985. G. Harling and L. Andersson 21868 (Holotype GB, isotype US). PARATYPE: ECUADOR: Loja: Villonaco, ca. 15 km W. of Loja, cloud forest changing into shrubby paramo at ridge tops. Forest selectively logged. elev. 2500-2900 m. Flowers yellow. Shrub 3 m. 24 Apr. 1987. H. van der Werff and W. Palacios 8927 (MO, US).

The new species is distinct from most members of the genus by the complete lack of rays in the heads. The rayless condition is otherwise known in M. holwayae (Blake) H. Robins. from the Prov. of Azuay in Ecuador to the north of Loja. The present species differs by the smaller rhomboidal leaves that lack dense tomentum on the undersurface.

***Verbesina harlingii* H. Robins., sp. nov.**

Plantae frutescentes ca. 2 m altae laxae ramosae. Caules pallide tomentelli striati et leniter angulati in nodis deflecti. Folia alterna, petiolis 10-12 mm longis; laminae ovatae et late trilobatae 12-17 cm longae et 5.5-8.0 cm latae base cuneatae et acuminatae margine unilobatae et aliter minime subserrulatae apice et in lobis breviter acutae supra patentiter scabridulae subtus in et inter nervulas irregulariter scabridulae, nervis secundariis erecte pinnatis utrinque ca. 9-10 in partibus intermediis 2-3 ascendentioribus. Inflorescentiae in ramis terminales late cymose ramosae ca. 15 cm altae et 27 cm latae in ramis densius corymbosae in ramis ultimis in fasciculis 2-4-capitatis aggregatae, ramis dense pallide puberulis vel hirtellis. Capitula cylindrica ca. 9 mm alta et 3 mm lata; bracteae involucri ca. 15 graduatae 4-5-seriatae oblongae 1.5-7.0 mm longae et 0.7-1.5 mm latae apice rotundatae margine puberulae plerumque flavescentes, bracteae basilares viridiores et extus densius puberulae. Flores radii nulli; flores disci 5 in capitulo; corollae flavae

ca. 4 mm longae, tubis ca. 1 mm longis dense scabridulis, faucibus ca. 2.2 mm longis plerumque in nervis dense scabridulis, lobis ovato-oblongis ca. 0.8 mm longis et 0.6 mm latis margine interiores dense papillosis; filamenta in partibus superioribus ca. 0.3 mm longa base leniter latiora; thecae nigrae ca. 1.7 mm longae; appendices pallidae ovatae ca. 0.35 mm longae et 0.28 mm latae. Achaenia immatura compressa ca. 3 mm longa et 1 mm lata margine plerumque glabra superne breviter setuloso-fimbriata in superficiis lateralibus multo setulifera apice valide aristata, aristis ca. 3.5 mm longis. Grana pollinis in diametro ca. 27  $\mu$ m.

TYPE: ECUADOR: Loja: Road Loja-Zaruma, between Chinchas and Sambu, dry shrubby woods, alt. 1700-1900 m.s.m. Shrub, ca. 2 m high. 3.V.1974. G. Harling and L. Andersson 14217 (Holotype GB.)

The new species is notable for its trilobed leaves. The leaf outline is reminiscent of Verbesina adenobasis Blake of Azuay, but the leaves are not opposite, the petioles are not winged, and the heads have less flowers and no rays. Relationship is undoubtedly closer to V. pentantha Blake, also of Loja, but the leaves of the latter lack lateral lobes and have minute erect serrulations on the margins.

***Verbesina villonacoensis* H. Robins., sp. nov.**

Plantae herbaceae perennes ca. 1 m altae laxae ramosae. Caules brunnescentes teretes non vel vix striati subglabri minute et appresse sparse pilosuli. Folia dense spiraliter inserta, petiolis nullis vel subnullis; laminae oblongae vel ellipticae plerumque 4-9 cm longae et 1.3-3.8 cm latae inferne integrae et subcuneatae base leniter abrupte constrictae supra medio multo serrulatae apice breviter acutae supra in superficiis plerumque glabrae submargine pilosulae subtus glabrae in nervis prominentes et in nervula minute reticulatis subtiliter impressae, nervis secundariis pinnatis utrinque ca. 5-6. Inflorescentiae in ramis terminales ascendenter alterne ramosae, ramis pilosulis, ramis ultimis plerumque 3-14 mm longis. Capitula 9-10 mm alta et 5-6 mm lata; bracteae involucri ca. 25 exteriores herbaceae 4-6 mm longae et 1.0-2.3 mm latae oblongae vel oblanceolatae apice obtusae extus sparse pilosulae et reticulato-venulosae, bracteae interiores 6-8 mm longae apice acutae extus laeves et plerumque glabrae; paleae bracteis interioribus similes. Flores radii nulli; flores disci ca. 14 in capitulo; corollae flavae 4.5 mm longae, tubis ca. 1.8 mm longis infundibularibus pilosulis, faucibus ca. 2 mm longis cylindricis glabris, lobis ovato-triangularibus ca. 0.8 mm longis et base ca. 0.6 mm latis margine interiores dense papillosis; filamenta in partibus superioribus ca. 0.4 mm longa; thecae nigrae 2 mm longae; appendices antherarum nigrae ovatae ca. 0.3 mm longae et 0.2 mm latae. Achaenia brunnea compressa ca. 3.5 mm longa et 1.7 mm lata glabra non alata?, pappus nullus vel uniaristatus, aristis ca. 1.8 mm longis. Grana pollinis in diametro ca. 25  $\mu$ m.

TYPE: ECUADOR: Loja: Villonaco, ca. 15 km W of Loja, cloud forest changing into shrubby paramo at ridge tops. Forest selectively logged. 2500-2900 m. Flower yellow. Shrub, 50 cm paramo. 24 Apr. 1987. H. van der Werff and W. Palacios 8914 (Holotype US, isotype MO). PARATYPES: ECUADOR: Loja: About 10 km SW of Loja, along road past the University towards La Violeta. Degraded cloud forest and rather dry scrub. 2950 m. Shrub, 1 m. Flowers yellow. 26 Apr. 1987. H. van der Werff and W. Palacios 9065 (MO, US); Western slopes of Cerro Villonaco, "phrygana" vegetation, alt. c. 2200 m. Shrub, to 0.5 m tall. Corolla yellow. 7.11.1977. G. Harling, U. Eliasson and L. Andersson 15129 (GB, US).

The species seems endemic to a small region near Cerro Villonaco in Loja. The species resembles Verbesina densifolia Blake and V. centroboyacana Diaz of Colombia (Diaz-Piedrahita 1985), but the latter species both have radiate heads. The Blake species is further distinct in the dense pubescence of its stem and involucre. The uniaristate and non-alate condition of the achenes of the new species cannot be considered definitive until fully mature achenes have been seen, but the nearly mature achenes seen have a yellow apical callus and arista with a contrasting brown achene body. The margins are concolorous and unwinged.

#### Literature Cited

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- Robinson H. 1976. Studies in the Heliantheae (Asteraceae). VII. Notes on the genus, Monactus. Phytologia 34: 33-45.
- \_\_\_\_\_. 1979. Studies in the Heliantheae (Asteraceae). XX. Notes and new species in Clibadium. Phytologia 44: 280-286.



CURRANTACEAE PLANTS OF PERU

DR. MARTIN DE MARTIN. Inval. Tasapoa  
Carrera de Tarapoto-Yurimagua, km. 1,  
ca. 16, elev. ca. 2500 ft., wet montane  
forest, sandy rocky soil, lvs. corolla  
white, fr. green.

August 15, 1978  
Manuel Rimachi Y 2527

Clibadium rimachii H. Robinson. Holotype, United States National Herbarium. Photos by Victor E. Krantz, Staff Photographer, National Museum of Natural History.



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3092910

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Clibadium zarucchi H. Robinson. Holotype, United States National Herbarium.





GEORGE ENGELMANN  
 HERBARIUM MUSEUM  
 0000305

FLORA OF ECUADOR

Date: \_\_\_\_\_  
 Locality: \_\_\_\_\_  
 Collector: \_\_\_\_\_  
 Number: \_\_\_\_\_

GE nr

Monactis anderssonii. H. Robinson. Holotype, GB.

0040165



**FLORA OF ECUADOR**

CONSERVACIÓN DEL PATRIMONIO BIOLÓGICO

12275 *Verbesina harlingii* Robinson

Holotype

2476. Base: Loja - Saraguro, between Saraguro and Guano, 2000 m. alt., 1970. A. S. G. & S. G.

2950. ca. 1000 m. alt.

A. S. G.

C. 10470. 1985. 6 - 10470. 1985. 6

*Verbesina harlingii* H. Robinson. Holotype, GB.



ECUADOR

COMPOSITE

*Verbesina villonacoensis* Robinson

Prov. Loja, Villonaco, ca. 15 km. N. of Loja, cloud forest changing into scrubby paramo at ridge tops. Forest selectively logged.

1000-1000 ft.

Flowers yellow, shrub, 10 m. tall

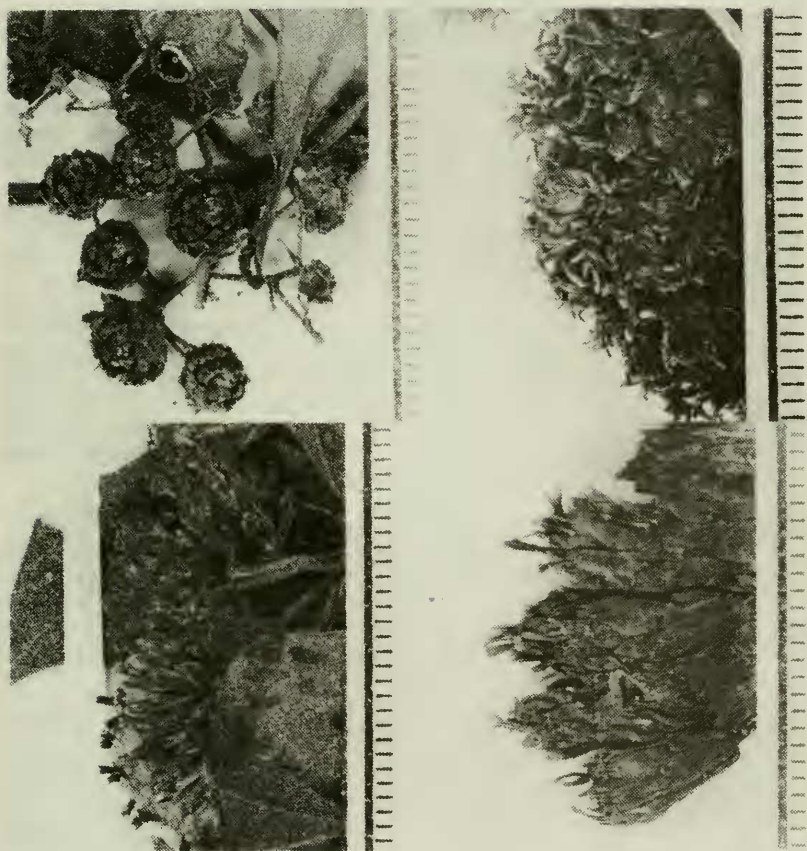
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*Verbesina villonacoensis* H. Robinson. Holotype, United States National Herbarium.



Enlargements of heads. Upper left: Clibadium rimachii.  
Upper right: C. zarucchii. Lower left: Monactis anderssonii.  
Lower right: Verbesina villonacoensis.